IN THE DRAWINGS:

Please amend Fig. 5 of the drawings as shown in red on the attached marked copy.

REMARKS

The abstract and the specification have been amended to employ more idiomatic English, and to correct errors including those noted by the Examiner . Fig. 5 of the drawings has been amended to correct an obvious clerical error. Claims 1 and 7 have been amended to employ more idiomatic English. No new matter has been added by any of these changes. Pursuant to 37 CFR 1.121, marked copies of the amended specification paragraphs, amended claims and amended abstract showing the changes made therein accompany this Amendment. Corrected formal drawings will be filed upon allowance of the Application.

Turning to the art rejection, in rejecting the claims as obvious from Betsui et al. et al. (US Patent No. 5,938,494) in view of Peng (US Patent No. 5,797,780), the Examiner acknowledges Betsui et al. fails to teach the sealing mechanism and process required by Applicant's independent claims 1 and 7, respectively. However, the Examiner takes the position that it would be obvious to combine Betsui et al. and Peng.

First, it is noted there is no disclosure or suggestion contained within the four corners of Peng that Peng is intended to be part of an integrated manufacturing apparatus including a joining chamber and gas introduction and sealing chamber as required by Betsui et al. and the instant claims. To the contrary, Peng appears to be nothing more than a stand-alone vacuum furnace. Moreover, it is submitted there is no motivation contained within the cited art to substitute in Betsui et al.'s integrated apparatus a stand-alone vacuum furnace as taught by Peng. Indeed, it is submitted such substitution would defeat the purpose of Betsui et al.

NO REASON TO COMBINE

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Moreover, even if Betsui et al. and Peng were combined as suggested by the Examiner, such combination still would not achieve the claimed invention. Applicant's independent claim 3 specifically requires a mechanism in the gas introduction and sealing chamber for moving the cover member from a first location within the gas introduction and sealing chamber to a second location within the same chamber which is over a heating apparatus. Betsui et al. incorporates a separate transfer chamber. Thus, Betsui et al.'s apparatus has sufficiently greater volume which means greater time in drawing vacuum, etc. as compared to Applicant's claimed invention. Moreover, and with regard specifically to independent process claim 7, there is no disclosure or suggestion in either Betsui et al. or Peng of the step of making the inside of the gas introduction and sealing chamber at atmospheric pressure, Thus, no combination of Betsui et al. and Peng reasonably could be said to achieve or render obvious independent apparatus claim 1 or independent process claim 7.

Claims 2-6 and 8 depend directly or indirectly on claims 1 and 7, and are allowable for the same reasons as stated above, as well as for their own additional limitations.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action are respectfully requested.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,

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MARKED AMENDED SPECIFICATION PARAGRAPHS

Serial No. 09/755,696

Docket No.: NEC 2020

MARKED AMENDED SPECIFICATION PARAGRAPHS:

Paragraph bridging pages 1 and 2, beginning at page 1, line 16:

A plasma display panel is generally formed by a front substrate and a rear substrate which have mutually perpendicular opposing electrodes on each of the substrates, a glass tube (hereinafter referred to as an exhaust tube) mounted by low-melting-point glass so as to join a through hole provided beforehand on the rear substrate for the purpose of introducing and exhausting gas, these elements being placed in a sealing furnace so as to melt the low-melting-point glass and form the glass vessel. In addition to release of the exhaust gas via the exhaust tube, the panel is heated to release internal gas. After degassing for a prescribed amount of time in order to achieve a prescribed level of vacuum, filling is done with a gas such as neon (Ne), argon (Ar), or xenon (Xe) or a gas mixture thereof at approximately 53,200 [to79,800] to 79,800 Pa (400 to 600 Torr), which serves as a luminescent gas, after which a gas burner or the like is used to seal the exhaust tube, thereby forming a plasma display panel with an exhaust tube.

Paragraph beginning at page 8, line 12:

Fig. 1 to Fig. 5 illustrate an apparatus and a method for manufacturing a plasma display panel according to the present invention, these drawings showing an apparatus for manufacturing a plasma display panel, this apparatus having a joining chamber 1 in which the front and rear substrates are joined by heating a low-melting-point glass, thereby forming the plasma display panel, and a gas introduction and sealing chamber 2, in which a luminescent gas or discharge gas is introduced into the plasma display panel via a gas introduction port [31a] 13a provided in the front substrate or the rear substrate, after which the gas introduction port is sealed.

Paragraph bridging pages 9 and 10, beginning at page 9, line 22:

Fig. 1 shows the configuration of an apparatus for manufacturing a plasma display panel according to the present invention, Fig. 2 is an enlarged cross-sectional view showing the main part of the gas introduction and sealing chamber, Fig. 3 is a cross-sectional view showing the condition in which a cap is pushed upward, and the plasma display panel is vacuum exhausted or filled with a luminescent gas, and Fig.[5] 4 is a drawing showing the condition in which a heater is pressed up against the gas introduction port of the plasma display panel.

Paragraph beginning at page 12, line 13:

The cap 7 inside the small chamber 3 is pushed upward, bringing it into contact with the rear substrate 13, the exhaust system 11 continuing to exhaust the inside of the panel (step S8) and the gas introduction and sealing chamber 2 is leaked so as to be [an] at atmospheric pressure (step SlO). Next, the luminescent gas introduction system 10 introduces a luminescent gas mixture of argon (Ar), neon (Ne), and xenon (Xe), via the opening 7b, at a specified pressure of 53,200 to 79,800 Pa (400 to 600 Torr) (step S11). Fig. 3 shows the above noted condition in which a cap is pushed upward, and the plasma display panel is vacuum exhausted or filled with a luminescent gas.

Paragraph bridging pages 12 and 13, beginning at page 12, line 29:

After the above, as shown in Fig. 3, the heater is lowered (step S14), the cap 7 being lowered and the gas introduction and sealing chamber 2 is leaked so as to be [an] at atmospheric pressure (step S15) . The panel is moved to an unloader, and cooled to below 100 ^{0}C (step S16), after which the plasma display panel is removed from the unloader (step S17).

MARKED AMENDED CLAIMS

Serial No. 09/755,696
Docket No.: NEC 2020

MARKED AMENDED CLAIMS:

1. (Amended) An apparatus for manufacturing a plasma display panel having an inside and comprising a joining chamber that forms a plasma display panel by joining a front substrate and a rear substrate by heating a low-melting-point glass and a gas introduction and sealing chamber which introduces a luminescent gas into said plasma display panel which is formed by said joining chamber via a gas introduction port provided in said front substrate or said rear substrate, and seals said gas introduction port, said manufacturing apparatus further comprising:

a first mechanism for supplying a cover member formed by a metal sheet to which low-melting-point glass is applied to a first location within said gas introduction and sealing chamber,

a second mechanism provided in said gas introduction and sealing chamber for moving said cover member from said first location to a second location which is over a heating apparatus,

a third mechanism provided in said gas introduction and sealing chamber for performing vacuum exhausting [an] the inside of said plasma display panel and introducing a luminescent gas into said plasma display panel, and

a fourth mechanism provided in said gas introduction and sealing chamber for heating said metal sheet to which said low-melting-point glass is applied by using said heating apparatus, so that said gas introduction port is sealed by said low-melting-point glass.

7. (Amended) A method for manufacturing a plasma display panel having an inside panel formed by heating a low-melting-point glass so as to join a front substrate to a rear

substrate, after which a luminescent gas is introduced into said plasma display panel via a gas introduction port provided in either said front substrate or said rear substrate, after which said gas introduction port is sealed, said method comprising:

a first step of fixing said front substrate of said plasma display panel to said rear substrates, placing said substrates into a joining chamber, and then performing vacuum exhausting an inside of said joining chamber,

a second step of heating a sealing glass provided on said front substrate or said rear substrate, so as to join said front substrate to said rear substrate,

a third step of placing said joined plasma display panel in a gas introduction and sealing chamber which has been vacuum-exhausted, and then vacuum exhausting [an] the inside of said plasma display panel,

a fourth step of making an inside of said gas introduction and sealing chamber [an] at atmospheric pressure,

a fifth step of introducing said luminescent gas into said plasma display panel which has been vacuum-exhausted, and

a sixth step of sealing said gas introduction port of said plasma display panel.

MARKED AMENDED ABSTRACT

Serial No. 09/755,696
Docket No.: NEC 2020

MARKED AMENDED ABSTRACT:

ABSTRACT OF THE DISCLOSURE

The apparatus for manufacturing a plasma display panel [comprising comprising:] having a first mechanism for supplying a cover member formed by a metal sheet to which low-melting-point glass is applied to a first location within the gas introduction and sealing chamber, a second mechanism provided in the gas introduction and sealing chamber for moving the cover member from the first location to a second location which is over a heating apparatus provided in the gas introduction and sealing chamber, a third mechanism provided in the gas introduction and sealing chamber for performing vacuum exhausting an inside of the plasma display panel and then introducing a luminescent gas into the plasma display panel, and a fourth mechanism provided in the gas introduction and sealing chamber for heating the metal sheet to which the low-melting-point glass is applied by using the heating apparatus, so that the gas introduction port is sealed by the low-melting-point glass.

MARKED AMENDED DRAWING

Serial No. 09/755,696
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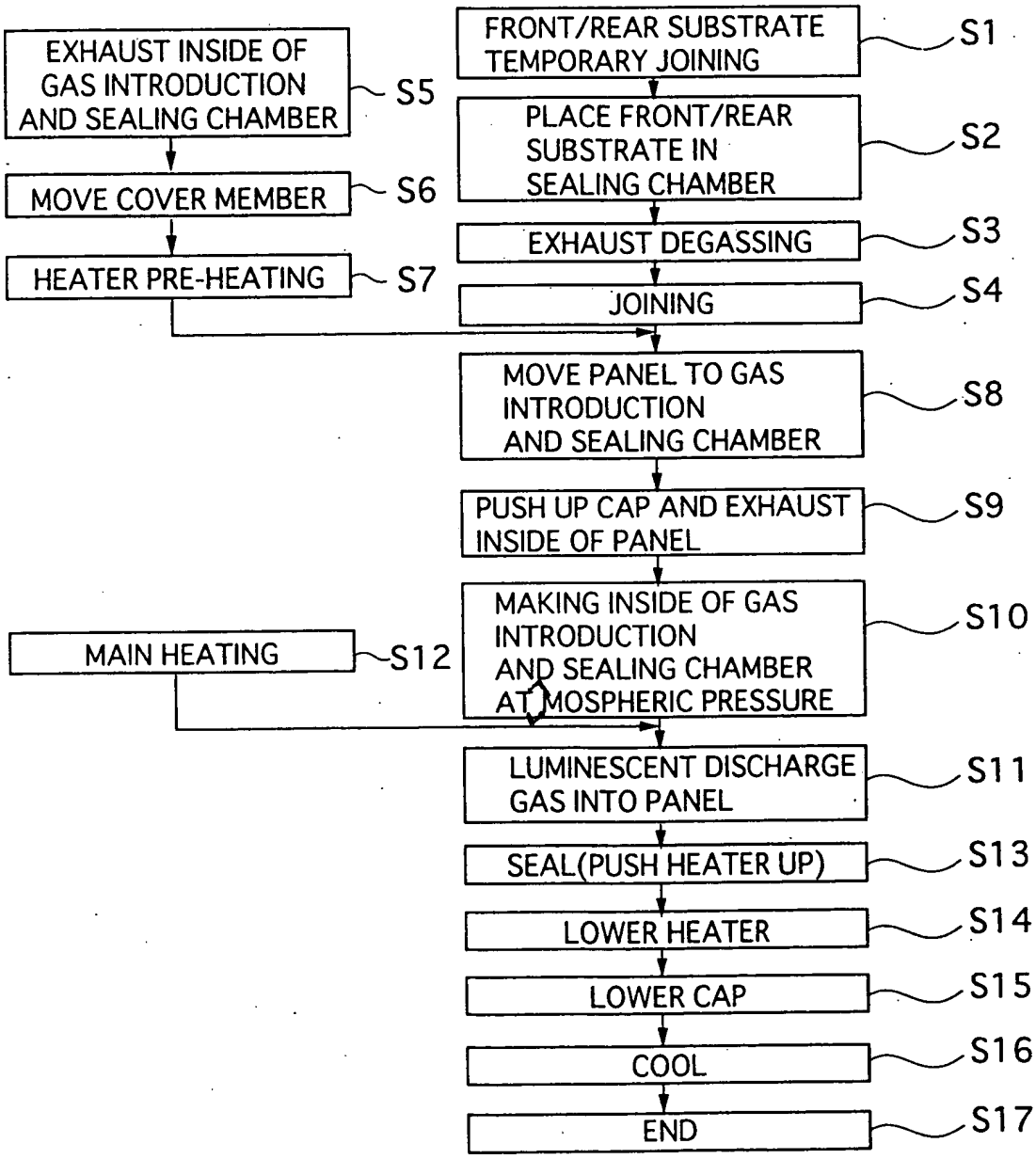
Fig. 5



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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 19, 2003, at Tucson, Arizona.

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